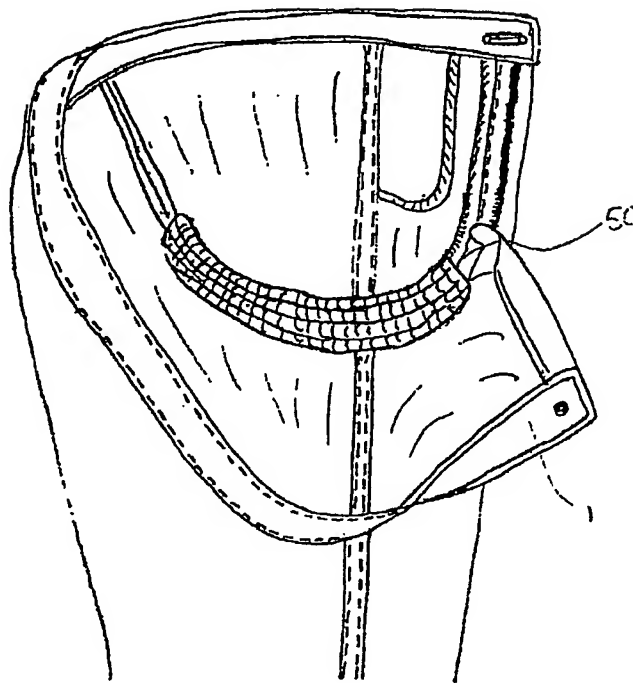




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(54) PROTEGE-SLIP  
(54) PANTLINER



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(57) A disposable pant liner that can be affixed to the crotch of any pant-type garment is described. The pant liner comprises a unitary sheet of absorbent fabric including an absorbent layer and a liquid impervious layer. The top surface of the absorbent layer is accommodated with a flexible covering to maintain the absorbent layer intact when the wearer of the garment is participating in intense exercise.

## **ABSTRACT**

A disposable pant liner that can be affixed to the crotch of any pant-type garment is described. The pant liner comprises a unitary sheet of absorbent fabric including an absorbent layer and a liquid impervious layer. The top surface of the absorbent layer is accommodated with a flexible covering to maintain the absorbent layer intact when the wearer of the garment is participating in intense exercise.

## **PANT LINER**

### **FIELD OF THE INVENTION**

The invention relates to the field of disposable hygienic products. More particularly, it relates to an improved pant liner for affixation to the crotch of any pant-type garment.

### **BACKGROUND OF THE INVENTION**

5 To prevent garment staining as a result of normal moisture or fluid transfer in the vaginal/rectal region, it is common practice to wear underpants or panties. Should the amount of fluid warrant it, panty liners are also available to be affixed to the crotch section of panties.

10 Although a panty liner has aided as a protection from staining, the use of panty liners and panties has often spoiled the look of snug outfits and presented the wearer with discomfort from panties "riding-up" when worn with tight-fitting clothing. Furthermore, the constriction of elastic bands around the waist and upper thighs of most panties is often uncomfortable to the wearer.

15 In an effort to overcome these problems, attempts have been made to create a pant liner that would enable the wearer to dispense with the need for undergarments.

For example, U.S. Patent No. 4,605,404 to Sneider describes a disposable pad that can be secured to the crotch of panty hose with self-stick adhesives. The pad has an impervious backing sheet and a pair of absorbent fill portions. The fill portions are adapted with fill members that test vaginal fluid and provide indicators to detect the possibility of diabetes and/or ovulation. The pad is adapted with four notches in the edges to assist in placement and attachment to panty hose.

25 U.S. Patent No. 5,613,963 to Boisse *et al.* discloses a panty liner comprising a primary liquid-retaining component in the form of a unitary sheet of non-woven fabric including a top surface, a liquid retaining component and a liquid impervious barrier layer. The top surface further includes a plurality of recesses in a spaced apart relationship with the capacity to retain highly viscous body exudate discharge.

Both U.S. Patent No. 4,605,404 to Sneider and U.S. Patent No. 5,613,963 to Boisse *et al.* disclose attempts to create an absorptive pant liner that can fit directly onto the pant garment without the need for panties. However, neither of these prior art patents discloses a pant liner that is accommodated to be resilient to the stretch and pulls of various fabrics, particularly those used during exercise.

## SUMMARY OF THE INVENTION

It is an object of the present invention to provide a pant liner that is an improvement over the prior art.

It is a further object of the present invention to provide a pant liner that maintains its protection and is resistant to distortion when used during exercise or in conjunction with stretch fabric.

According to the present invention, there is provided a disposable pant liner for attachment to the crotch of any pant-type garment and for absorption of everyday vaginal and rectal fluid discharge, the disposable pant liner comprising a unitary sheet of fabric including an absorbent layer, a liquid impervious layer integral with the absorbent layer, said absorbent layer including a top surface adapted with a flexible covering that protects the top surface from distortion; and an attachment means for attachment of the pant liner to the garment.

The pant liner of the present invention has many advantages. It includes a network of thin elasticized webbing that allows the absorption pillows of the top surface of the pant liner to remain functional while the liner stretches to accommodate the flexion of the material to which it is attached. The pant liner is of a length permissive for it to collect both vaginal and rectal fluid discharges and since the pant liner is not intended to collect menstrual discharge, it may be quite thin. The pant liner is also advantageous in that it can be applied to any type of pant garment.

Other advantages, objects and features of the present invention will be readily apparent to those skilled in the art from a review of the following detailed descriptions of the preferred embodiment in conjunction with the accompanying drawings and claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention will now be described in greater detail and will be better understood when read in conjunction with the following drawings, in which:

Figure 1 is a top view of the pant liner with hinged contour;

5 Figure 2 is a top view of the pant liner with elastic webbing;

Figure 3 is a rear view of the pant liner adapted with release sheet; and

Figure 4 is a top view of the pant liner inserted into the crotch of a pair of pants.

## DETAILED DESCRIPTION

10 Referring to Figure 1, the pant liner 1 is a unitary sheet of fabric that includes an absorbent layer 5 and a liquid impervious layer 10 (see Figure 3).

15 The absorbent layer 5 is accommodated with a top surface 15. To assist the liner in adhering to the specific body contours of the wearer and to improve absorbency of the absorbent layer 5, top surface 15 uses a hinged contour 20 which consists of a network of folds in which a series of longitudinal hinges 25 and lateral hinges 30 are impressed into the absorbent layer 5. The hinged contour 20 allows the pant liner 1 to bend sideways and lengthwise to better accommodate the movements of both the garment and the wearer.

20 The top surface 15 is also accommodated with an elastic webbing 35 (see Figure 2) that protects the absorbent layer 5 of the pant liner 1 and maintains the absorbent layer 5 free from distortion while the periphery of the pant liner 1 stretches to accommodate the movements of the fabric to which it is attached. The elastic webbing 35 is attached to the perimeter edges of the top surface 15 and is fabricated from a thin elastic material that does not provide discomfort or irritation to the wearer.

25 The liquid impervious layer 10 (Figure 3) lies beneath the absorbent layer 5. The liquid impervious layer 10 is accommodated with adhesive strips 40 so that the liquid impervious layer 10 can be affixed to the inside of a garment. When the pant liner 1 is not in use, the adhesive strips are accommodated with a release sheet 45.

The pant liner of the present invention is intended to be attached to various types of fabric, therefore, it will be obvious that it may be accommodated with a variety of adhesives adaptable to the particular fabric of the garment where attachment is required.

5 In operation, the pant liner 1 is removed from the release sheet 45. The adhesive means 40 is exposed and utilized to position and retain the pant liner 1 in the crotch of the pant-type garment 50 (Figure 4). After a desired period of use, the pant liner 1 is removed and a new pant liner 1 can be inserted into the garment to protect the garment during the next wearing.

10 In addition, numerous modifications, variations and adaptations may be made to the particular embodiments of the invention described above without departing from the scope of the invention, which is defined in the claims.

**THE EMBODIMENTS OF THE PRESENT INVENTION IN WHICH AN  
EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS  
FOLLOWS:**

1. A disposable pant liner for attachment into the crotch of any pant-type garment and  
for absorption of vaginal and rectal fluid from every-day wear, the disposable pant liner  
5 comprising:

a unitary sheet of fabric including an absorbent layer, said absorbent layer  
including a top surface adapted with a flexible covering that protects the top surface  
from distortion;

a liquid impervious layer in contact with and supporting the absorbent layer,  
10 and;

attachment means for attachment of the pant liner to the garment.

2. A disposable pant liner as defined in claim 1, wherein the flexible covering is an  
elasticized webbing.

3. A disposable pant liner as defined in claim 1, wherein the attachment means  
15 comprises self-adhesive strips.

4. A disposable pant liner as defined in claim 3, wherein the adhesive strips are provided  
with a release sheet.

5. A disposable pant liner as defined in claim 1, wherein the absorbent layer comprises a  
hinged contour to improve absorbency and flexibility of the pant liner.

20 6. A disposable pant liner as defined in claim 1, wherein the unitary sheet is of a length  
sufficient to protect the garment from both vaginal and rectal fluid discharges.

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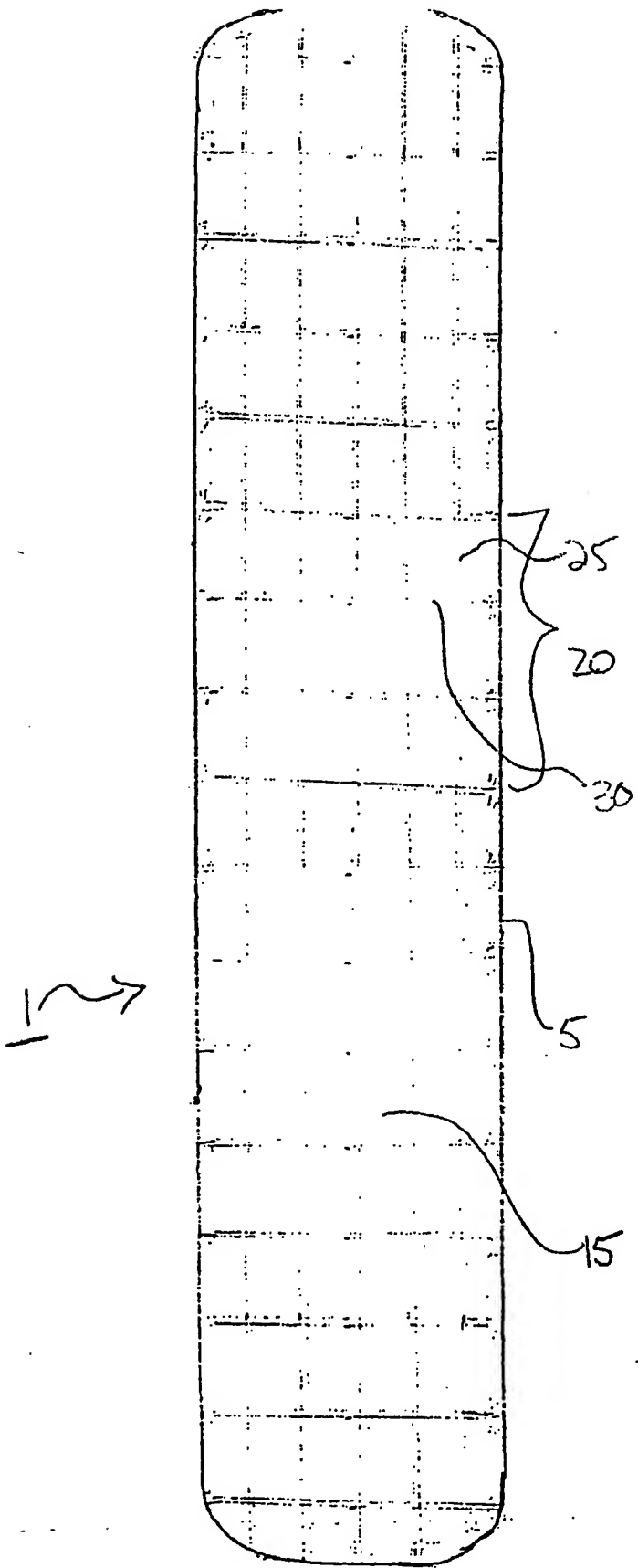


FIGURE 1



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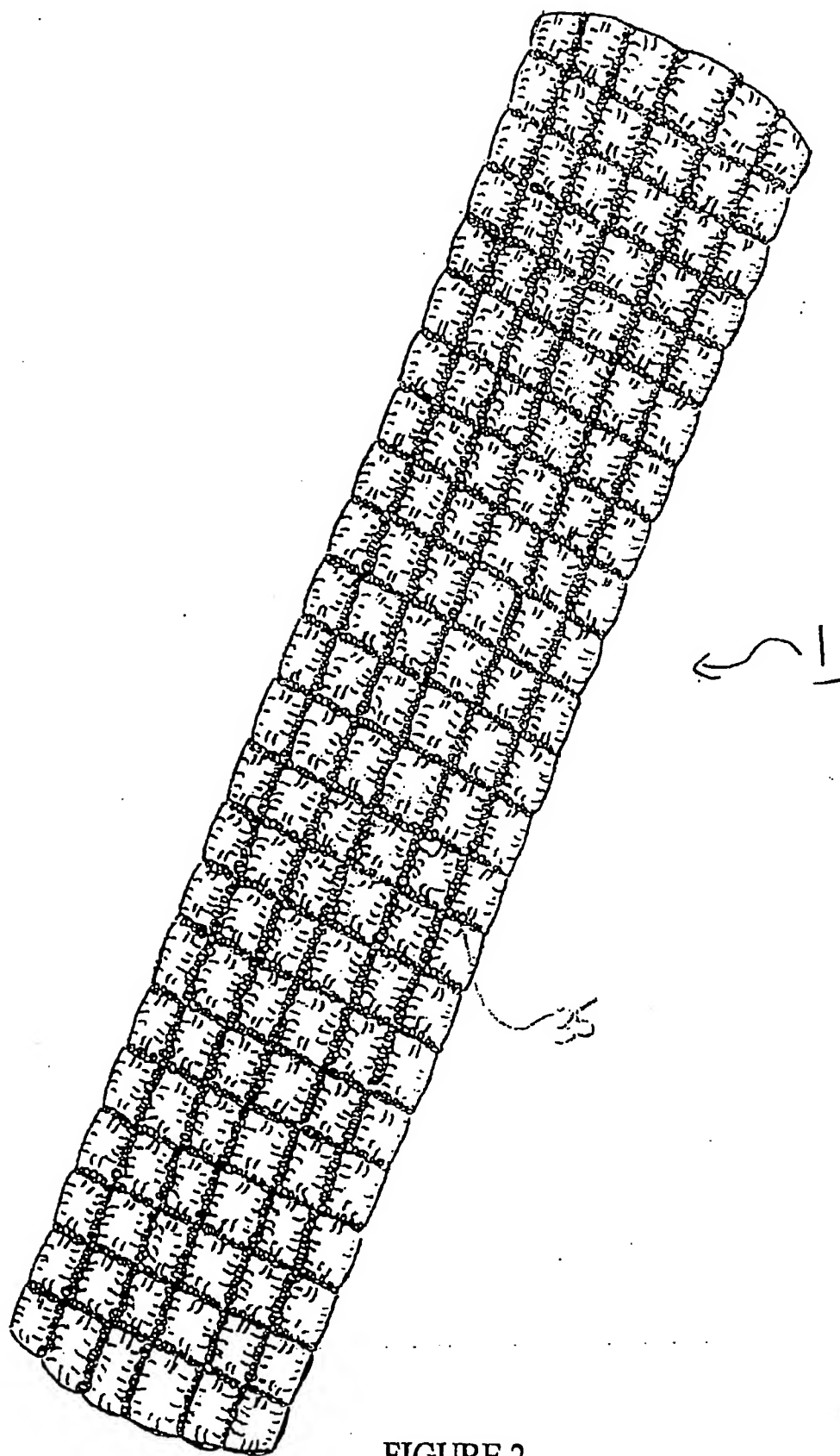


FIGURE 2

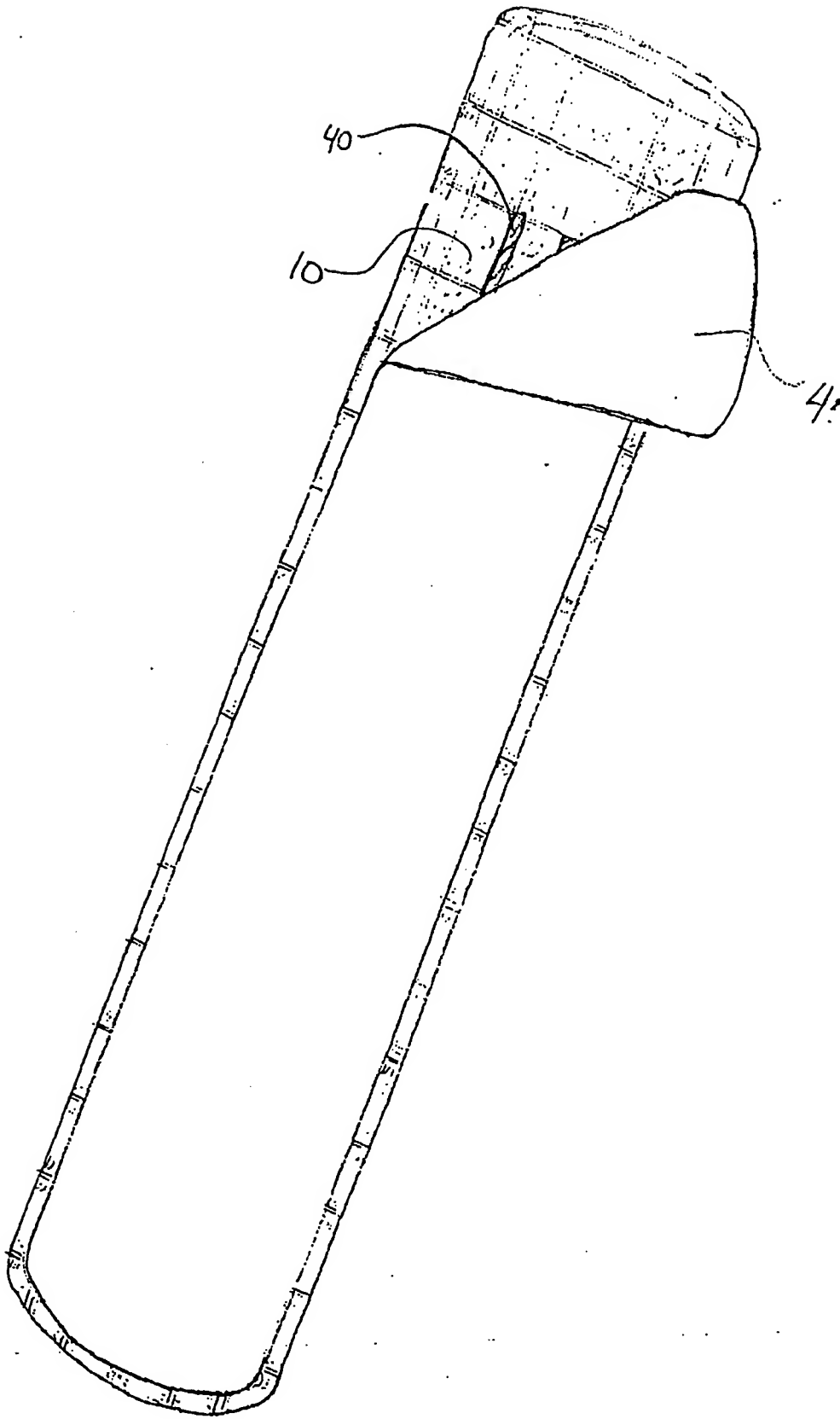


FIGURE 3

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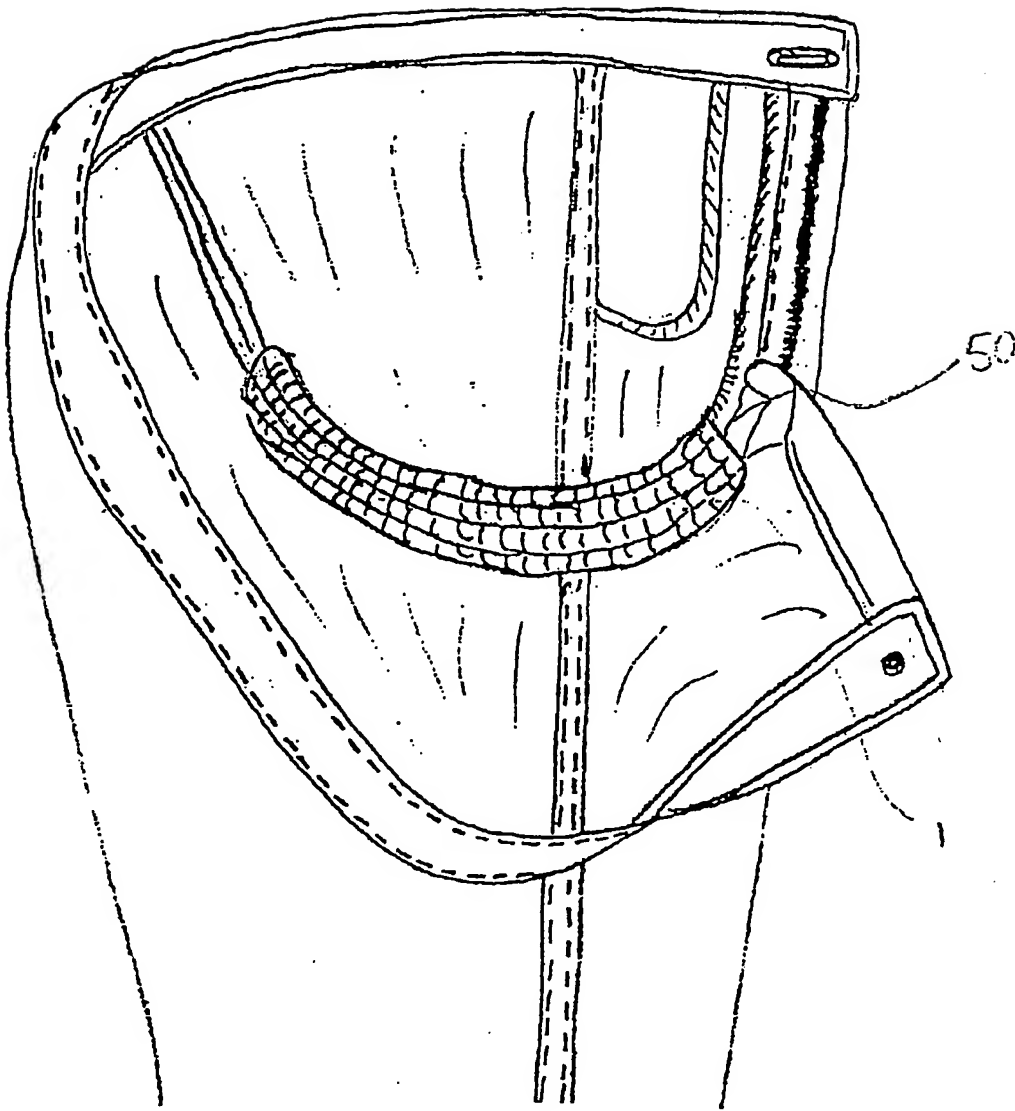


FIGURE 4